DOCUMENT RESUME

ED 339 139 EA 023 573

AUTHOR Swanson, Austin D.
TITLE "Optimal" Size and Schooling: A Relative Concept.
PUB DATE Oct 91
NOTE 17p.; Paper presented at the Annual Meeting of the University Council for Educational Administration (Baltimore, MD, October 1991).
PUB TYPE Speeches/Conference Papers (150) -- Viewpoints (Opinion/Position Papers, Essays, etc.) (120)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Cost Effectiveness; *Educational Economics; *Educational Finance; Elementary Secondary Education; Governance; *School District Size; School Effectiveness; *School Size

ABSTRACT

Issues in economies of scale and optimal school size are discussed in this paper, which seeks to explain the curvilinear nature of the educational cost curve as a function of "transaction costs" and to establish "optimal size" as a relative concept. Based on the argument that educational consolidation has facilitated diseconomies of scale, the economic concept of transaction costs is combined with the sociological concept of school culture to explain why small schools function better than expected. The impact of other social forces on school size--standards, available technology, and governance structures--are also described. A conclusion is that new patterns of governance and school organization render understandings about the relationships among school/district size, cost, and outcomes obsolete. (18 references) (LMI)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☒ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Austin D. Swanson
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ED 339139

"Optimal" Size and Schooling: A Relative Concept[1]

Austin D. Swanson
State University of New York at Buffalo

For nearly a century, we have sought to find an "optimal" point for school and district size. The object of our quest has been very elusive. When we started out, most schools consisted of one room, one teacher, and not more than forty pupils. Few high schools would have met Conant's (1959) minimum standard of 100 pupils per graduating class.

As we progressed into the industrial era, the curricular demands upon schooling expanded while the clientele of schooling grew in size and diversity. Under these circumstances, a policy of consolidation seemed wise (and probably was). We did consolidate with great energy and enthusiasm; we consolidated to the point where, in many large cities and some suburbs, we organized elementary schools of three and four thousand pupils and high schools of over 5,000 pupils.

We pursued economies of scale until we experienced severe diseconomies of scale, discovering that the cost-curve in education is curvilinear--as it is for most other industries. While there are disadvantages in being very small, there are also disadvantages in being very large. We were quick to accept the concept of economies of scales in education; but our public

EA 023 573

[1] Paper presented at the annual meeting of the University Council for Educational Administration, Baltimore, MD, October 1991.

BEST COPY AVAILABLE

policy has been very slow to accommodate the concept of diseconomies of scale.

The first purpose of this paper is to explain the curvilinear nature of the educational cost curve as a function of "transaction costs." The second purpose is to establish "optimal size" as a relative concept.

Transaction Costs in Education

"Transaction costs" is not a familiar term in the educational parlance. It did, however, receive a brief moment of national and international attention last week when the Nobel Prize in Economics was awarded to Professor Ronald Coase of the University of Chicago for explaining the importance in economic theory of the transaction costs of entering into contracts and of managing businesses.

Eventually, expansion of an organization (e.g., school or district) can lead to diseconomies and higher unit costs because of managerial problems which are characteristic of large operations. Building on Coase's thesis, Williamson (1975) argues that conventional estimates of economies of scale have vastly underestimated "transactional costs," i.e., cost of communication, coordination and deciding. Peters and Waterman (1982), in their study of "America's best-run companies," found that divisions, plants and branches were smaller than any cost analysis would suggest they should be. Decentralization of function was practiced where classic economics would ordain otherwise. "The excellent companies understand that beyond a

certain surprisingly small size, diseconomies of scale seem to set in with a vengeance" (p. 112).

"Communication, coordination and deciding" have a lot to do with organizational culture and transaction costs are likely to be even greater in a human service industry such as education than for manufacturing and other businesses. Recent research, as discussed below, shows school culture to be an important factor influencing the academic achievement of children--especially minority and disadvantaged children. School culture is defined as the pattern of beliefs and expectations of the members of the school community that guide their predominant attitudes and behaviors. Culture has a lot to do with "communication, coordination and deciding." School culture affects everybody's ability to function cooperatively and productively.

Cultures most conducive to learning seem to be found in small organizations which are personal and where the prescriptions for learning are individualized. Large bureaucracies tend to be hierarchical, impersonal and act according to standardized rules and procedures, all of which seem to impede the learning process.

Without using the term, Oxley (1989) describes the impact of transaction costs in large schools:

> The great failing of large schools is that they create an unfavorable social climate for learning. When enrollment exceeds five hundred, teachers and administrators no longer know all the students by name; and at one thousand, staff is

unable to distinguish an intruder from a student....Research studies document that at-risk students suffer the consequences of large school size most. (p. 28)

In another study, Walberg and Fowler (1987) conclude:

> Generally, it appears that the smaller the district, the higher the achievement when the SES and per-student expenditures are taken into account. Why should small districts do well? Superintendent and staff awareness of citizen and parent preferences, the absence of bureaucratic layers and administrative complexity, teacher involvement in decision making, and close home-school relations--these may account for the apparent efficiency of small districts. (p. 13)

Berlin and Cienkus (1989), after co-editing an issue of Education and Urban Society devoted to the subject of size of school districts, schools, and classrooms, concluded that "smaller seems to be better."

> Why does smaller seem to work better?...The literature on educational change repeats the answer. That is, people seem to learn, to change, and to grow in situations in which they feel that they have some control, some personal influence, some efficacy. Those situations in which parents, teachers and students are bonded together in pursuit of learning are likely to be the most productive. Small size by itself can only aid the complex process. (p. 231)

In addressing the issue of the unwholesome culture of many urban schools, the Carnegie Foundation's (1988) Report, An Imperiled Generation, observed:

> Overcoming anonymity--creating a setting in which every student is known personally by an adult--is one of the most compelling obligations urban schools confront. Young people who have few constructive relationships with adults need a sense of belonging. They need positive encounters with older people who serve as mentors and role models for both educational and social growth. Building community must be a top priority if students in urban schools are to academically and socially succeed. (p. 24)

Rural schools are characterized by not only a strong sense of community within the school itself, but also a strong sense of being a part of the external community and an extension of the family. It is this factor which has been identified as overcoming the many admitted weaknesses of rural schools (Barker & Gump, 1964; Coleman, 1986; Newman, 1981). It is also the fear of losing that sense of community that causes much of the rural population to oppose schemes of further school consolidation.

In city and suburban schools, there is a great emphasis on competitiveness to prepare pupils for survival in the economic and academic institutions of urban environments. In rural areas, most organizations, not just schools, are small and tend to be quite personal and businesses are frequently family proprietorships. These personal and familial relationships carry

over into the schools where there is a culture of acceptance, cooperation and mutual support (Skelly, 1988), not unlike that to which Wiles (1991) refers to as "the whole village teaches the child." Indeed, many of the innovations of the current educational reform movement have always been practiced in rural schools including individualized instruction, peer tutoring, cross-age grouping and community involvement (Barker, 1986).

Peter Coleman (1986) hypothesizes that "district ethos," defined in a fashion similar to "culture" above, may account for the strong and unexpected negative relationship he found between pupil achievement and expenditure per pupil.

> In particular, it [district ethos] seems capable of explaining the unexpectedly strong academic performance of small and rural districts, despite their traditional frugality with public funds. Secondly, it provides a useful linkage between classrooms, schools, and school districts, helping explain relationships known to exist between effective schools and central offices. (pp. 95-96)

Slater (1989) approaches the issue from a somewhat different perspective, but with a similar conclusion. He refers to education culture, structure, and scale as a "triad" existing together. The cannot function in isolation, one from the others.

Combining the economic concept of transaction costs with the sociological concept of school cultures provides us with a powerful explanation of why small schools--usually rural--tend to function so much better than one would expect; and, on the other

hand, why large schools--usually urban--frequently fail to live up to our expectations. But, curvilinear cost curves in education are only part of the story concerning economies and diseconomies of scale. Scale considerations are also a function of other social forces which change over the course of time. We turn our attention to these other forces in the next section.

"Optimal" Size: A Relative Concept

Studies of the relationships between school and district size, costs, and outcomes, date back to the early 1900s. Because optimum size is a function of desired standards, available technology, and governance structures, the changes which have taken place over time have made many of the older studies obsolete. In this section, we note some of these changes in standards, technology and governance and their effect on what might be identified as optimal size. Defining optimal size is an evolving process and public policy needs to be continually revised to reflect our latest understandings.

Desired Standards

The school reform movement set significantly higher academic standards of acceptable school performance. Standards have also changed because of federal and state policies on desegregation, affirmative action, education of handicapped children and occupational education. The need to meet these new standards and expectations is often cited as a reason supporting the consolidation of small schools and school districts.

Both small rural and large urban schools have found it difficult to meet proposed and mandated higher standards. The bureaucratic nature of urban schools and school districts, derived primarily from their large size, appears to be a major impediment to reform for all but the most stalwart. On the other hand, the smallness of rural schools severely limits their options in providing new curricula. A nurturing school culture and community involvement seem to be achieved more easily in small schools than in large ones; yet, it has been easier to provide diversity in large schools than in small ones.

Available Technology

Developments in educational technology have affected the definition of optimal school and school district size in the past and will continue to do so in the future. For example, the policy of rural school consolidation became viable only after the development of the school bus and paved highways.

The full potential of many current technological developments such as educational television and computer services can only be realized through networking at the regional, state and national levels. Once appropriate networks are in place, however, disadvantages of small schools arising from the restricted scope of their curricular offerings will be largely eliminated.

Related to the developments in educational technology is the trend toward individualization of instruction which is likely to effect the definition of optimal size in the future. For

decades, the educational community has been plagued by a conflict between its ideal of providing for individual needs, and the practice of standardization. School district consolidation has been based on the theory that individual needs can be met only by providing an increased number of standardized programs.

Studies of size have generally made an assumption that the variety of programs identified by separate classes truly measures diversity of opportunity for learning. This can be a fallacious assumption. Compare, for example, the one room school house to the comprehensive high school. In the one room school house, one teacher serves 30 or more students at different grade levels and teaches a variety of subjects. Older children help younger children, and a great deal of the learning is done independently. The diversity in program is derived simply from the diversity of the children and the flexibility of the teacher. One cannot say that because one teacher is grouped with 30 children that only one program exists. Advances in instructional technology and electronic communications have brought to both large and small schools, alike, opportunities for enrichment and individualization not previously possible. The organizational norms of the small school appear to be more compatible with the effective use of these advances, however.

With the comprehensive high school, the assumption is made that the greater the number of program offerings, the richer the program for the student. Yet, just the opposite may be true. With size comes specialization and more rigidly defined

curricula. Learning becomes compartmentalized into departments and special topics or courses within departments. Once size forces departmentalization and specialization within programs, then organizational constraints do indeed require a greater number of programs to provide enrichment. A large school may offer more "pieces" of an educational program. But if the pieces are standardized, they may also be fragmented. When education is offered as a series of fragments, more fragments are needed to build understanding of a broader picture. In this context, a greater variety of "programs" might be necessary for "quality" education. Powell, Farrar and Cohen (1985) dubbed the resulting organization The Shopping Mall High School and point out that many students, especially at-risk students, make poor curricular choices which impair their intellectual development.

Governing Structures

In the past, providing diversity in curriculum and support services at an affordable cost were primary justifications for large urban schools and rural school consolidation. Now, the disadvantages of bigness and the virtues of smallness have been well documented. Additionally, technological advances characteristic of the "Information Age" have made it possible for any individual in almost any place to access curricular diversity easily. These developments combine to impel a reassessment of the large school policies of central cities and state school consolidation policies.

Fowler (1989) concludes:

> It is apparent that public school size and district size both influence schooling outcomes, and although other evidence of this relationship has accumulated, policy makers seem to ignore the finding and its significance. Much litigation has been undertaken to equalize expenditures per pupil, or to assure equivalent staff characteristics in an effort to increase learning, however, it appears that keeping schools relatively small might be more efficacious. (p. 21)

Schools of any size, but especially small schools, require support services which they cannot provide themselves in a cost-effective manner. In rural areas, such services are increasingly being provided through intermediate districts and other cooperative arrangements. Creation of regional service units greatly lowers the minimum functional size of schools and school districts by making it possible for a number of small districts to jointly provide services none could provide alone. Occupational education and education of the severely handicapped are examples. Regional centers also provide certain technological services with respect to educational television, interactive video, and computer assisted instruction; this involvement is likely to grow in the future.

In enlarging the domain of decision-making at the building level, and in reducing the domain of decision-making at the district level, central city districts may begin to take on the

characteristics of intermediate districts. In this respect, it is interesting to note that Illinois has radically changed the governance of education in the City of Chicago (Hess, 1991). The new law does away with the former Board of Education and places control of schools in the hands of school councils consisting of six parents, two local residents and two teachers. Day-to-day authority resides in the hands of principals--who are selected by the councils. The councils also have authority to set the budget and to dismiss incompetent teachers. We see this as a precursor of things to come.

Where school based management is implemented, school building administrators will be responsible for many of the functions formerly associated with central offices such as budgeting, community relations and personnel selection. Traditional responsibilities of building principals will continue although they may be shared to a greater extent with teachers. Discretion over curriculum and program will increase at the building level. Since today's small rural school district with a single building is the epitome of school based decision making (Jacobson, 1991), the role of the principal in the future is likely to be cast in terms similar to that of today's rural school superintendent. The role of the big city superintendent is likely to focus on strategic planning and policy development.

We are entering a very dynamic period in education and our governance structure must be flexible enough to respond. In most states, this structure has four service levels with authority for policy presently concentrated at two of these levels. The primary level of authority is the state as represented by the legislature, the governor, the state school board, and the state education department. This level is charged with establishing basic policy for the system and overseeing and coordinating its components. The second level of authority is local school districts which are the local decision makers and responsible for the provision of educational services. Recently, many states have developed intermediary units between the state and school districts to provide educational services, frequently acquired by districts on a contract basis, where economies of scale can be realized at a regional level. Schools are the basic operational units charged with delivering educational services to children. Until recently, the discretionary powers of schools have been severely limited by state and district policies; but, the growing popularity of school based management will change this.

If we view our pattern of educational governance as a network of educational resources available to highly diverse communities, it is perfectly reasonable for the state to delegate or decentralize those functions which can more effectively and more efficiently be handled at the regional, district or school level. By the same token, it is also reasonable for the district to do cooperatively that which it cannot do well independently

and to delegate authority and discretion to schools over those functions involving the daily operations of schools. The procedures for assigning functions should permit flexibility because an optimal allocation will vary among regions and districts according to demographic and geographic characteristics (Wiles, 1991) and over time according to changing definitions of standards and new technological developments. We are seeing this happen with growing rapidity as the educational reform movement matures. With new patterns of governance and witn new patterns of school organizations, our former understandings about the relationships between school and district size and cost and outcomes become obsolete.

References

Barker, B. (1986). The advantages of small schools. Las Cruces, NM: ERIC Clearinghouse on Rural Education and Small Schools. (ERIC Document Reproduction No. ED 265 988)

Barker, R. G., & Gump, P. V. (1964). Big school, small school. Stanford, CA: Stanford University Press.

Berlin, B., & Cienkus, R. (1989). Size: The ultimate educational issue? Education and Urban Society, 21, 228-231.

Carnegie Foundation for the Advancement of Teaching (1988). An imperiled generation: saving urban schools. Lawrenceville, NJ: Princeton University.

Coleman, P. (1986). The good school: A critical examination of the adequacy of student achievement and per pupil expenditures as measures of school district effectiveness. The Journal of Education Finance, 12, pp. 71-96.

Conant, J. B. (1959). The American high school today. New York: McGraw-Hill Book Company.

Fowler, Jr., W. J. (1989). School size, school characteristics, and school outcomes. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Hess, Jr., G. A. (1991). School restructuring, Chicago style. Newbury Park, CA: Corwin Press.

Jacobson, S. L. (1991). Comparing administrators' perceptions of SBM. Paper presented at the annual meeting of the University Council for Educational Administration. Baltimore, MD.

Newmann, F. M. (1981). Reducing student alienation in high schools: implications of theory. Harvard Education Review, 51, 546-564.

Oxley, D. (1989, Spring). Small is better. American Educator, 28-31, 51-52.

Peters, T. J., & Waterman, Jr., R. H. (1982). In search of excellence: Lessons from America's best-run companies. New York: Warner Books.

Powell, A. G., Farrar, E., & Cohen, D. K. (1985). The shopping mall high school: Winners and losers in the educational market place. Boston: Houghton Mifflin Company.

Skelly, M. E. (1988). Rural schools at the crossroads. School and College, August, 51-56.

Slater, R. O. (1989). Education scale. Education and urban society, 21, 207-217.

Walberg, H. J., & Fowler, Jr., W. J. (1987). Expenditure and size efficiencies of public school districts. Educational Researcher, 16, 7, 5-13.

Wiles, D. K. (1991). Economies of scale and smallness policy in K-12 districts: Jurisdiction versus production comparisons. Paper presented at the annual meeting of the University Council for Educational Administration. Baltimore, MD.

Williamson, O. E. (1975). Markets and hierarchies: Analysis and antitrust implications. New York: Free Press.